REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

The subject matter here pertains to a image processing apparatus comprising an input portion, a converter, a detector and a determining portion. The detector detects, based on lightness data and chromaticness data, whether an input color image data is out of a predetermined color space. The determining portion determines that the color image data is image noise when the detector detects that the color image data is out of the predetermined color space. The apparatus here seeks to detect and reduce background noise associated with processing an image.

Rejections Under 35 U.S.C. § 103

Claims 1, 4, 7, 8, 11, 14 and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Shirasawa et al ("Shirasawa", U.S. Patent No. 5,689,590) and Ball (U.S. Patent No. 6,323,957). Applicants respectfully traverse this rejection. In making this rejection, the Official Action takes the position that Shirasawa discloses each feature of Claim 1 except for a detector detecting whether input color image data is out of a predetermined color space based on lightness data and chromaticity data. The Official Action relies on the disclosure of Ball to cure this deficiency and concludes that it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Shirasawa in the manner taught by Ball.

Claim 1 provides for an image processing apparatus comprising, *inter alia*, a detector detecting, based on lightness and chromaticness data, whether said input color image data is out of a predetermined color space. Claim 1 further provides that

a determining portion determines that a color image data is image noise when the detector detects the color image data is out of the predetermined color space. The combination of Shirasawa and Ball fails to disclose these features in combination with the other aspects of the Claim 1.

Shirasawa discloses a background noise removing apparatus which performs density conversion on color components to remove the background noise. An image on a sheet of paper is read by an image input device. The input image is converted from an RGB color space into an L*u*v* color space. The densities of pixels are changed to the density of a white pixel when the densities of the pixels fall below a predetermined density threshold value, thus removing background noise. Column 3, lines 20-28.

The Official Action takes the position that reference character 130 and Fig. 3 in Shirasawa generally correspond to the claimed feature of a detector detecting whether the input color image is out of a predetermined color space. Fig. 3 and reference character 130 provide for a background noise removing unit, generally. The background noise removing unit operates by converting the densities of pixels to match the density of a white pixel. The Official Action correctly notes that Shirasawa fails to disclose that the detector detects whether the input image data is out of a predetermined color space based on lightness data and chromaticity data. The Official Action relies on the disclosure the Ball in an attempt to cure this deficiency.

Ball discloses a background noise removal system for a digital color copier. In Ball, a background color is determined and compared with incoming pixels of a scanned document. If one of the incoming pixels has a color value "near" that of the background color, the pixel is stretched sufficiently to become pure white. If a pixel

has a color value "far" from the background color, the pixel is not changed. If the pixel has a color value in a transition area between "near" and "far", is stretched in a linear fashion. Column 5, lines 43. Ball discloses this process to remove background noise arising from situations where near-white background pixels (i.e. noise) are produced that contrast against the background of the paper on which they are printed.

The Official Action takes the position that Fig. 8 of Ball discloses determining whether or not a pixel is out of an acceptable color space based on the hue and lightness of the pixel. Fig. 8 is actually a three dimensional rendering of the mean hue of the background and standard deviation, based on C1 and C2, resulting in an inner ellipse 68. To the extent inner ellipse 68 defines a color space, it is a color space based on hue data, and not lightness and chromaticness data as claimed. Accordingly, to detect whether a scanned pixel falls within the inner ellipse, the scanned pixel will also be evaluated based on its hue. Thus, Ball does not disclose a detector detecting, based on lightness and chromaticness data, whether input color image data is out of a predetermined color space as claimed. Rather, Ball compares a scanned pixel to the inner ellipse 68 based on hue. For at least this reason, withdrawal of this rejection is respectfully requested.

Independent Claim 8 recites features similar to those recited in Claim 1, which is allowable for the reasons discussed above. For these same reasons, Claim 8 is also allowable.

Claims 2-7 and 9-15 ultimately depend from either Claim 1 or Claim 8, which are allowable. For at least this reason, these dependent claims are also allowable.

Conclusion

Based on at least the foregoing amendments and remarks, Applicants submit that claims 1-15 are allowable, and this application is in condition for allowance. Accordingly, Applicants requests a favorable examination and consideration of the instant application. In the event the instant application can be placed in even better form, Applicants request that the undersigned attorney be contacted at the number below.

Respectfully submitted,

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